

REMARKS

Reconsideration and allowance of the subject application in view of the following remarks is respectfully requested.

A. Claims 1-5, 7, 10, 12-16, 18, 20, and 23 stand rejected under 35 USC 103(a) over *Tian et al.* (US Pub 2002/0076084) in view of *Okamoto et al.* (US 2006/0276983). This rejection is respectfully traversed for the following reasons:

- first, the disclosures of *Tian* and *Okamoto*, taken as a whole, do not suggest Applicants' claimed method of measuring transmission quality of multimedia data;
- second, the asserted combination of references does not teach or suggest all of Applicants' claim features; and
- third, the grounds of rejection constitute an improper reconstruction of Applicants' claimed invention.

Independent claim 1 recites:

A method of measuring transmission quality of multimedia data, comprising the steps of:

- (a) a transmitter transmitting multimedia data through a channel to a receiver;
- (b) the receiver receiving the multimedia data from the transmitter and transmitting, to the transmitter through a return channel, information on errors occurring during the multimedia data transmission;
- (c) estimating, at the transmitter, the multimedia data played at the receiver using the error information received from the receiver, and
- (d) measuring, at the transmitter, the transmission quality of the multimedia data received by the receiver by comparing the estimated received data with reference data.

The Examiner alleges that paragraph [0059] of *Tian* discloses steps (a)-(b) of claim 1, and relies on *Okamoto* to disclose steps (c)-(d). Applicants respectfully disagree and submit that claim 1 is patentable over the alleged combination of *Tian* and *Okamoto* for the failure of the applied art to not only disclose, teach or suggest all of Applicants' recited claim features, but in addition fails to present any apparent reason to combine references or modify prior art to create the Applicants' allegedly obvious claim elements.

Regarding step (b), Applicants respectfully submit that nowhere does *Tian* disclose wherein the receiver transmits information on transmitted errors back to the transmitter. *Tian* relates to a method of measuring the quality of service of broadcast media signals by analyzing digital watermarks embedded in the received broadcast signal. At paragraph [0066], *Tian* appears to only disclose wherein “digital watermarks can be used to give a more accurate measure of the actual quality of the delivered video.” Furthermore, *Tian* does not return “the ratio of signal strength,” (see paragraph [0059]), to the transmitter. In fact, nowhere does *Tian* disclose, teach or suggest transmitting this error information to the transmitter over a back channel.

Regarding step (c), Applicants submit that nowhere does *Okamoto* disclose, teach, or suggest estimating at the transmitter, the multimedia data played at the receiver using the error information received from the receiver. *Okamoto* appears to only disclose comparing an undeteriorated reference video signal RI with a deteriorated video signal PI, (see paragraph [0078] and Figs. 1 and 6. Applicants respectfully submit that a deteriorated signal is not “error information,” as claimed by Applicants. In *Okamoto*, (see paragraph [0018]), “estimating a subjective quality of the deteriorated video signal” means measuring the perceptual (subjective) quality of the deteriorated video signal. In other words, *Okamoto* produces a perceptual quality score (a single number) of the deteriorated video signal. On the other hand, in step (c) of claim 1, the deteriorated video signal at the receiver (the multimedia data received by the receiver) is estimated using the error information. In other words, step (c) produces an estimated video signal. Then, in step (d), the perceptual (subjective) quality of the estimated deteriorated video signal is measured. Similarly, at paragraph [0143], “estimation accuracy” relates to a perceptual quality score and never discloses producing an estimated video signal.

Because *Okamoto* uses the actual deteriorated signal and not error information used to estimate the multimedia data played at the receiver, as recited in step (c), *Okamoto* necessarily fails to disclose both the step (c) and the step (d) of using estimated data derived from the received error information.

Furthermore, Applicants respectfully submit that the grounds of rejection constitute an improper reconstruction of Applicants’ claimed invention. It is improper to use the claimed

invention as an instruction manual to piece together the teachings of the prior art so that the claimed invention is rendered obvious. The Office Action appears to use improper hindsight reconstruction to pick and choose among isolated disclosures. Accordingly, it is respectfully submitted that the combination is improper.

For example, on page 4 of the Office Action, the Examiner alleges that “[t]herefore, it would have been obvious to one of ordinary skill in the art ... to modify the method of *Tian* & *Okamoto* to include estimate [sic] the multimedia data according to the estimated effective transmission rate thereby the multimedia quality (paragraph 16).” Applicants respectfully disagree.

The USPTO’s Board of Patent Appeals and Interferences has stated that:

[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. (*In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006) cited with approval in *KSR*, 550 U.S.).

Therefore, Applicants respectfully submit that:

- 1) nowhere does either *Tian* or *Okamoto* disclose, teach, or suggest a receiver sending back to the transmitter error information,
- 2) nowhere does *Tian* suggest transmitting anything back to the transmitter,
- 3) nowhere does *Okamoto* suggest estimating the multimedia data played at the receiver using the error information which neither *Tian* nor *Okamoto* sends back, and
- 4) nowhere does *Okamoto* suggest using any estimated received data, other than the deteriorated signal itself, to measure ('estimate' in *Okamoto*) a transmission ('subjective' in *Okamoto*) quality.

Applicants further submit that not only does neither reference suggest the desirability of combining their respective teachings, even if combinable, the alleged combination of *Tian* and *Okamoto* fails to teach each and every feature recited in claim.

Thus, Applicants respectfully submit that independent claim 1 is patentable over the alleged combination of *Tian* and *Okamoto* based upon the failure of the alleged combination of

references to disclose, teach, or suggest each and every feature of claim 1, as well as for the impermissible combination of *Tian* and *Okamoto*.

Independent claim 12 is an apparatus claim based upon the method of claim 1 and recites “an estimation unit estimating the received data received at the receiver using the returned error information.” Accordingly, Applicants submit that claim 12 is likewise allowable over the alleged combination of the applied references for the reasons presented above.

The method of independent claim 23 is similar to claim 1 in that step (b) recites “transmitting a set of parameters extracted from a video segment which are affected by errors occurring during multimedia data transmission to the transmitter through a return channel by a receiver receiving the multimedia data from the transmitter.” As presented above, neither *Tian* nor *Okamoto* disclose this feature and further submit that one of ordinary skill in the art would not be motivated to combine their respective disclosures to render obvious the claimed subject matter.

Claims 2-5, 7, 10, 13-16, 18 and 20 are likewise patentable at least based on their dependency on an allowable base claim, as well as for additional features they recite.

Claim 2, for example, recites wherein the error information is transmitted to the transmitter through the return channel “only when a transmission error of the multimedia data is detected.” Applicants respectfully submit that neither *Tian* nor *Okamoto* discloses this feature, paragraph [0050], cited in the Office Action as disclosing this feature appearing to only relate to metrics “for assessing watermark strength, including the degree of correlation between the reference watermark signal and the detected watermark signal, and a measure of symbol errors in the raw message estimates of the watermark message payload.” Accordingly, claim 2 is patentable not only based upon its dependency on an allowable claim but further because the failure of the applied references to teach at least the added feature of claim 2.

Accordingly, withdrawal of the rejection of claims 1-5, 7, 10, 12-16, 18, and 23 over the alleged combination of *Tian* and *Okamoto* is respectfully requested.

B. Claims 6, 8, 9, 11, 17, 19, 22 and 24 stand rejected under 35 USC 103(a) over *Tian* and *Okamoto*, and further in view of *Saunders et al.* (US 6,351,733). Applicants respectfully traverse these rejections.

Applicants submit that *Saunders* appears to only relate to enhancement of a desired portion of the audio signal for individual listeners (see column 1, lines 15-17) and fails to remedy the deficiencies of *Tian* and *Okamoto*, as regarding claim 1.

Claims 6, 8, 9, 11, 17, 19, and 22 depend variously from independent claims 1 and 12, and as presented above, are likewise patentable over *Tian*, *Okamoto*, and *Saunders*.

Independent claim 24 is similar in scope to claims 1 and 12 and is likewise allowable over the alleged combination of *Tian*, *Okamoto*, and *Saunders*.

C. Claim 21 stands rejected under 35 USC 103(a) over *Tian* and *Okamoto*, and further in view of *Caviedes et al.* (US 2004/00012675). Applicants respectfully traverse this rejection and submit that *Caviedes*, at paragraph [0002], appears to only relate to “a method and system for estimating the quality of pictures without referring to the source video data” (emphasis added). Because *Caviedes* does not base its quality analysis on the originally transmitted data, *Caviedes* has no need to, and indeed fails to disclose transmission of any error information back to the transmitter. Furthermore, it appears that *Caviedes* does not disclose a **control unit** which performs at least one of operations of terminating video transmission and increasing the channel bandwidth, depending on evaluation results of transmission quality

In addition, Applicants submit that based upon the admitted lack of reliance on the source of the video data, one of ordinary skill in the art would not be motivated to combine *Caviedes* with art that required use of the source video data. Accordingly, claim 21 is not only allowable based upon the failure of the applied references to disclose each and every claimed feature, claim 21 is further allowable based upon the improper combination of applied references. As presented above, the Office Action appears to use improper hindsight reconstruction to pick and choose among isolated disclosures.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the present application should be in condition for allowance and a Notice to that effect is earnestly solicited. Early issuance of a Notice of Allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicants' attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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